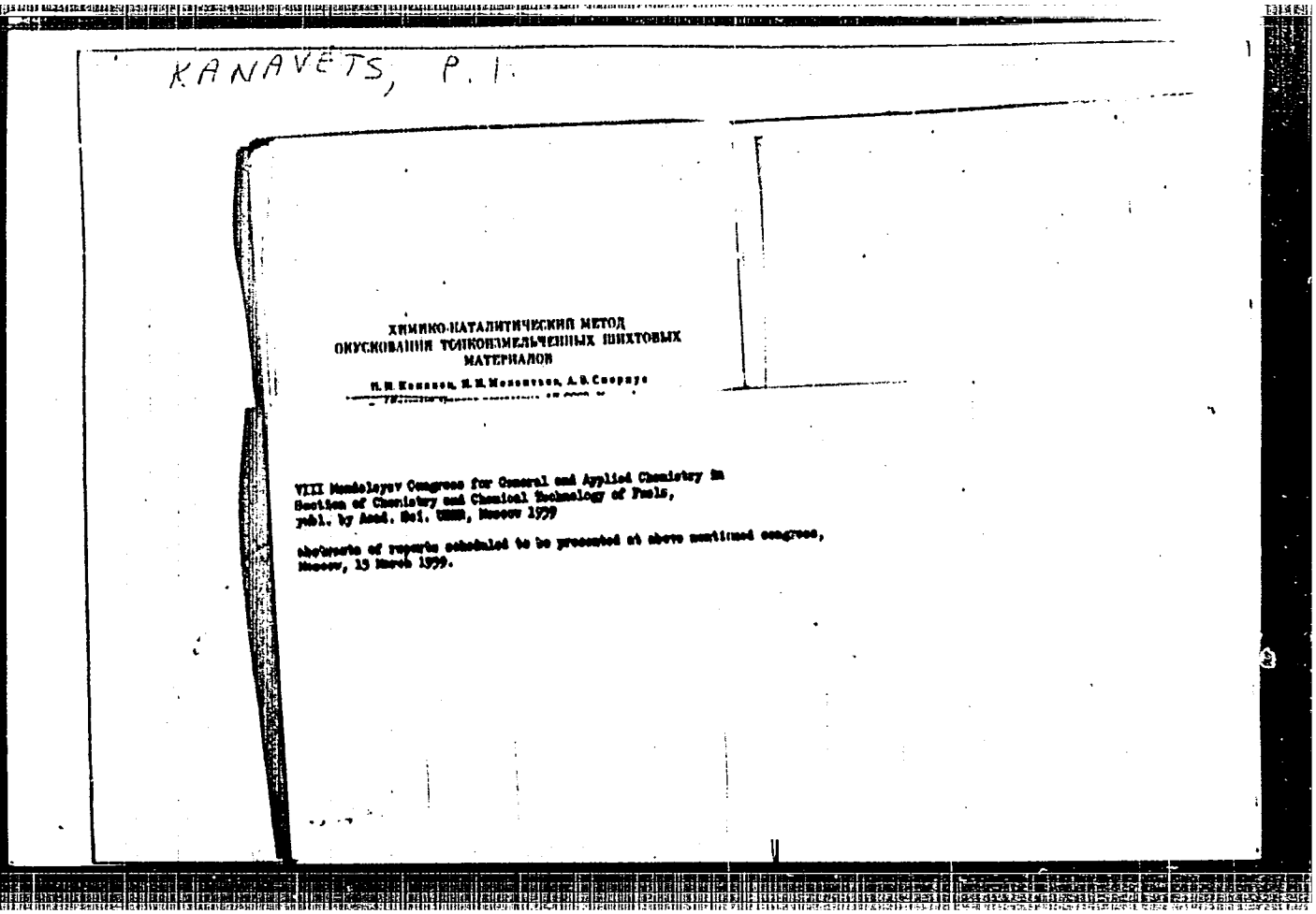
ZHDANKOVICH, L.N.; KANAVETS, P.I.; ANNENKOVA, V.Z.; TSAREVA, A.S.

Fluxed metallurgical fuel from the Irkutsk Basin coal. Izv.Sib. otd. AN SSSR no.9:69-75 '58. (MIRA 11:11)

1. Institut goryuchikh iskopayemykh AN SSSR.
(Irkutsk Basin--Coke)



KANAVETS, P. I.

ХИМИКО-КАТАЛИТИЧЕСКИЙ МЕТОД
ОКУСКОВАНИЯ ТОНКОИЗМЕЛЬЧЕННЫХ ШИХТОВЫХ
МАТЕРИАЛОВ

П. И. Канавец, И. И. Моисеенко, А. В. Скорняк

VIII Mendeleyev Congress for General and Applied Chemistry in
Section of Chemistry and Chemical Technology of Fuels,
publ. by Acad. Sci. USSR, Moscow 1959

Abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 13 March 1959.

KANAVETS, P.I.

BARDIN, I.P.; GESS-DE-KALIVE, P.A.; KANAVETS, P.I.; MELENTYEV, P.N.; VAVILOV, N.S.

Vosstanovlenie rudno-toplivnykh granul vo vzveshenno-fontaniruyushchem sloe s tselyyu polucheniya gubchatogo zheleza.

report submitted for the 5th Physical Chemical Conference on Steel Production.

Moscow _ 30 Jan 1958

BARDIN, I.P.[deceased]; VAVLOV, N.S.(Moskva); GESS-DE-KAL'VE, B.A. (Moskva); DIYEV, V.Ye.(Moskva); YEMEL'YANOV, V.I.(Moskva); KANAVETS, P.I.(Moskva); MELENT'YEV, P.N.(Moskva); RUMYANTSEVA, M.A. (Moskva); TSYLEV, L.M.(Moskva).

Reduction roasting of iron in ore-fuel granules in a fluidized bed with fountain effect. Izv. AN SSSR. Otd.tekh.nauk. Met.i topl. no.5:13-18 S-O '60. (MIRA 13:11)
(Ore dressing) (Fluidization)

KANAUER, K. E.

128

PHASE I BOOK EXPLOITATION SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye (Synthetic Zeolites: Production, Investigation, and Use). Moscow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady) Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komissiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor of Chemical-Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P. Golub'.

PURPOSE: This book is intended for scientists and engineers engaged in the production of synthetic zeolites (molecular sieves), and for chemists in general.

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Synthetic Zeolites: (Cont.) SOV/6246

COVERAGE: The book is a collection of reports presented at the First Conference on Zeolites, held in Leningrad 16 through 19 March 1961 at the Leningrad Technological Institute imeni Lensovet, and is purportedly the first monograph on this subject. The reports are grouped into 3 subject areas: 1) theoretical problems of adsorption on various types of zeolites and methods for their investigation, 2) the production of zeolites, and 3) application of zeolites. No personalities are mentioned. References follow individual articles.

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KANAVETS, P.I.; GESS, B.A.; MELENT'YEV, P.N.; CHERNYSHEV, A.M.; CHERNYKH, V.I.; SPORIUS, A.E.

Method of chemical catalysis for nodulizing finely ground materials without sintering. Trudy IGI 22:5-30 '63. (MIRA 16:11)

KANAVETS, P.I.; CHERNYKH, V.I.; CHIBISOVA, K.I.

Thermographic investigation of fluxed ore-fuel granules prepared by the method of chemical catalysis. Trudy IGI 22:31-34 '63. (MIRA 16:11)

KANAVETS, P.I.; VERBITSKAYA, O.V.

Investigating processes of carbonization and hardening of fluxed ore-fuel granules. Trudy IGI 22:35-38 '63.
(MIRA 16:11)

CHERNYSHEV, A.M.; GESS, B.A.; KANAVETS, P.I.; MELENT'YEV, P.N.;
KISELEV, G.P.; TSYLEV, L.M.; BORISOV, Yu.I.; CHERNYKH, V.I.

Metallurgical properties of granules prepared by the method of chemical catalysis. Trudy IGI 22:39-49 '63.
(MIRA 16:11)

AL'TSHULER, V.S.; KANAVETS, P.I.; GAVRILOVA, A.A.

Investigating kinetics of the reduction of ore-fuel granules. Trudy IGI 22:50-56 '63. (MIRA 16:11)

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; MELENT'YEV, P.N.; CHERNYSHEV, A.M.; CHERNYKH, V.I.; KHAYLOV, B.S.; BORISOV, Yu.I.

Experimental pilot plant stand for the nodulizing of finely ground materials by the method of chemical catalysis. Trudy IGI 22:57-69 '63. (MIRA 16:11)

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; CHERNYSHEV, A.M.; MELENT'YEV, P.N.; CHERNYKH, V.I.; KHROMYAK, R.P.; KHAYLOV, B.S.; BORISOV, Yu.I.; TSYLEV, L.M.; SOKOLOV, V.S.; Prinimali uchastiye: MARKIN, A.A.; GORLOV, M.Ya.; VORONOV, Yu.G.; BULAKHOV, K.A.; KREMYANSKIY, V.L.; ARSHINOV, G.P.; MAZUN, A.E.; PISARNITSKIY, I.M.; BOKUCHAVA, O.A.; KIRILLOV, M.V.; TSELUYKO, P.I.; POLYAKOV, G.O.; REZKOV, A.S.; ZHUCHKOV, M.I.; ROMASHKIN, A.S.; ZUBKOV, A.S.; KOZLOV, N.N.

Pilot plant for the nodulizing of finely ground charge mixtures by the method of chemical catalysis. Trudy IGI 22: 93-109 '63. (MIRA 16:11)

KANAVETS, P.I.; MELENT'YEV, P.N.; CHERNYKH, V.I.; GESS, B.A.; SPORIUS, A.E.; CHERNYSHEV, A.M.

Using chemical catalysis for nodulizing charge mixtures composed of various raw materials. Trudy IGI 22:114-125 '63. (MIRA 16:11)

GESS, B.A.; KANAVETS, P.I.; VAVILOV, N.S.; MELENT'YEV, P.N.

Investigating the reduction of iron in carbonaceous ore granules. Trudy IGI 22:126-130 '63. (MIRA 16:11)

KANAVETS, P.I.; CHIBISOVA, K.I.; CHERNYKH, V.I.; MELENT'YEV, P.N.

Thermographic investigation of coal granules for the purpose of studying their behavior during thermal decomposition. Trudy IGI 22:136-146 '63. (MIRA 16:11)

KANAVETS, P.I.; MEKLENT'YEV, P.N.; SPORIUS, A.E.; CHERNYKH, V.I.; YENIK, G.I.; IVLEVA, A.S.

Technological characteristics of granulating coal charges. Trudy IGI 22:147-153 '63. (MIRA 16:11)

KANAVETS, P.I.; MELENT'YEV, P.N.; SPORIUS, A.E.; CHERNYKH, V.I.; YENIK, G.I.; IVLEVA, A.S.; GESS, B.A.; CHERNYSHEV, A.M.

Obtaining metallurgical coke from weakly-caking coals by the preliminary granulation of coal charge mixtures prior to coking. Trudy IGI 22:154-168 '63. (MIRA 16:11)

KANAVETS, P.I.; MELENT'YEV, P.N.; YENIK, G.I.; IVLEVA, A.S.; LAZOVSKIY, I.M.; GRYAZNOV, N.S.; MOCHALOVA, G.V.; KORENSKIY, V.I.

Preliminary granulating of coal charges with rolling in mazut. Koks i khim. no.8:10-14 '63. (MIRA 16:9)

1. Institut goryuchikh iskopayemykh AN SSSR (for Kanavets, Melent'yev, Yenik, Ivleva). 2. Vostochnyy uglekhimicheskiy institut (for Lazovskiy, Gryaznov, Mochalova, Korenskiy).
(Coal preparation)

GESS, B.A.; CHERNYSHEV, A.M.; KANAVETS, P.I.; MELENT'YEV, P.N.; KHROMYAK, R.P.; VORONOV, Yu.G.; TSYLEV, L.M.; CHERNYKH, V.I.; BORISOV, Yu.I.; SPORIUS, A.E.; Prinimali uchastiye: TOLEROV, D.D.; MINKIN, V.M.; MARKIN, A.A.; GORLOV, M.Ya.; KHAYLOV, B.S.

Experimental blast furnace smelting with replacement in the charge of 20-per cent of the fluxed sinter by granules prepared by chemical catalysis. Trudy IGI 22:110-113 '63. (MIRA 16:11)

AGROSKIN, A.A., doktor tekhn.nauk; BARSKIY, Yu.P., kand.tekhn.nauk; GONCHAROV, Ye.I., inzh.; KANAVETS, P.I., kand.tekhn.nauk

Measurement of the heat capacitance of solid fuels heating to temperatures up to 1000°C. Izv.vys.ucheb.zav.; energ. 8 no.12:51-57 D '65. (MIRA 19:1)

1. Vsesoyuznyy zaochnyy institut pishchevoy promyshlennosti; Institut goryuchikh iskopayemykh, Moskva, i Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy. Predstavlena kafedroy energetiki. Submitted December 23, 1964.

CHERNYSHEV, A.M.; GESS, B.A.; KANAVETS, P.L.; MELENT'YEV, P.N.; KHODAK, L.Z.; SOKOLOV, G.A.; BORISOV, Yu.I.; CHERNYKH, V.I.; Prinimali uchastiye: VAVILOV, N.S.; MAKARCHENKO, V.G.; KISELEV, G.P.; VOLNISTOVA, R.A.; MOREYEVA, G.P.

Testing granules made by the method of chemical catalysis in a laboratory shaft furnace. Trudy IGI 22:70-78 '63. (MIRA 16:11)

L 25704-66 EWT(1)/FCC GW

ACC NR: AP6010819 SOURCE CODE: UR/0025/65/000/011/0085/0089

AUTHOR: Kanavets, V. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: Looking for ball lightnings in Tersek

SOURCE: Nauka i zhizn', no. 11, 1965, 85-89

TOPIC TAGS: atmospheric phenomenon, lightning

ABSTRACT: The author describes his participation in the investigation of mysterious atmospheric phenomena which regularly occurred in the Tersek forest (Kustanayskaya oblast', Kazakhskaya SSR). The first information on these phenomena appeared in a letter addressed to a newspaper by one of the members of the Soil Science Institute of the Academy of Sciences of Kazakhskaya SSR. These phenomena were described as straying luminous balls of a yellow-red color. The diameter of the balls was of 20 to 25 cm. The result of this letter was the organization of numerous expeditions by members of various universities and institutes from different towns and cities. The author, belonging to the Moscow University group, gave a popular description of his investigations in the Tersek forest area. His interviews and conversations

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with local people, scientists and representatives of other well equipped groups were marked by irony. Finally, the author as well as most of the other scientists came to the conclusion that the mysterious lights in the air were caused by optical reflections of lights from local villages and traveling motor vehicles. The author's explanations were accompanied by three photos showing various lights and by a small map showing the plan and relief of the Tersek area. In any case, it was proven that these phenomena were not originated by any kind of ball lightning. The author also presented a general review of various aspects of ball lightning citing and describing some examples. The hypothesises of formation of luminous balls were briefly discussed and their various forms and appearances were outlined.

SUB CODE: 04 / SUBM DATE: None / ORIG REF: 000 / OTH REF: 000

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KANAVETS, V.I.

SUBMITTED: December 7, 1957 SOV/109-3-3-22/23

AUTHORS: Golubkov, P.V. and Tsimring, Sh. Ye.

TITLE: The Second All-Union Conference on Radioelectronics of the Ministry of Higher Education of the USSR (Vtoraya vsesoyuznaya konferentsiya MVO SSSR po radioelektronike) - News Item

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 3, pp 440 - 444 (USSR)

ABSTRACT: The conference took place during September 23 - 29, 1957, at Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo (Saratov State University imeni N.G. Chernyshevskiy). Apart from the universities, the conference was attended by the representatives of some scientific research institutes of the Soviet and Ukrainian Academies of Science, various industrial establishments and the interested ministries. This arrangement stimulated the discussion and evaluation of the papers presented and permitted the determination of plans for the future research to be carried out by the universities in the field of radioelectronics.

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During the plenary session on September 23, two papers were read: "Development Trends of UHF Electronics in the Soviet Union" by N.D. Devyatkov and "Electromagnetic Waves in the System of Vari-directional Electron Beams" by V.M. Lopukhin. N.D. Devyatkov presented numerous factual data illustrating the rapid development of the U.H.F. electronics in the Soviet Union and the vast contribution of the Soviet scientists to the theoretical foundations of this science; he also discussed the development trends of U.H.F. electronics in the immediate future. The paper described a number of original Soviet U.H.F. devices. The work of V.M. Lopukhin was concerned with the theoretical investigation of the phenomena taking place in multi-ray devices whose electron beams have different directions. The author showed that the presence of the electron beams which are perpendicular to the axis x facilitates the appearance of the solutions which are increasing functions of x for the case of n rays

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directed along the axis x; it also leads to the appearance of exponentially increasing solutions in the presence of one beam in the above direction. The Electronics Section comprised 50 papers; more than one-third of these were concerned with the theoretical and experimental investigation of wide-band electronic devices for U.H.F. The lecture by V.N. Shevchik, L.Ya. Mayofis and L.D. Pokrovskiy dealt with the extension of the known theories of travelling-wave tubes and backward-wave tubes to the practically important cases when the delay structure necessitated the taking into account of the discrete character of the interaction of the electron beam with the high-frequency field. The lecture by V.C. Stal'makhov, V.N. Shevchik and Yu.D. Zharkov was devoted to the simplified analysis of the operation of a backward-wave tube by employing the cosinusoidal approximation of the given field. The papers by V.B. Braginskiy, A.S. Gorshkov, A.I. Kostiyenko, G.P. Lyubimov, I.T. Trofimenko and V.V. Anisimov were concerned with the detailed experimental and theoretical investigation of the possibility (first indicated by V.N. Shevchik in 1954) of expanding the bandwidth of the electronic trimming of reflex klystrons by means of the

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mutual synchronisation of several klystron tubes. The operation of reflex klystrons with multi-circuit resonant systems was also investigated. The results of experimental and theoretical investigation of two-ray amplifying and multiplying tubes were given in the communication by L.E. Aitova, V.M. Lopukhin, L.A. Shkudova and in the communication of V.I. Kanavets. Some of the papers in the Electronics Section dealt with the investigations which were concerned with the development of novel U.H.F. devices, suitable for the generation and amplification of the wave-forms in the millimetre and sub-millimetre ranges. The papers of great interest were: "Experimental Investigations of the Radiation of the Electron Bunches in the Vicinity of Non-homogeneities" by V.B. Braginskiy and Ye.P. Mustel', "Comparison of the Efficiency of Certain Methods of the Generation of Millimetre Waves" by A.S. Tager and "Application of the Higher Spatial Harmonics of the Electromagnetic Field in Slowing-down Systems" by A.S. Tager and V.A. Solntsev.

SOV-109-3-6-11/27

AUTHORS: Kanavets, V. I., Kuz'mina, G. A. and Lopukhin, V. M.

TITLE: Noise in a 2-Ray Tube Produced by Shot Fluctuations in the Beams (Shumy dvuluchevoy lampy, vyzvannyye drobovymi fluktuatsiyami v potokakh)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 6, pp 800-805 (USSR)

ABSTRACT: The work aims at determining the dependence of the noise figure of a 2-ray tube on a number of its parameters. It is assumed that the tube gives a comparatively high amplification and that the noise figure can be expressed by (see Ref.1):

$$F = \frac{\overline{E_{1s}^2} + \overline{E_{1t}^2}}{\overline{E_{1t}^2}} \qquad (1)$$

where $\overline{E_{1s}}$ is the amplitude of the amplified wave at the beginning of the interaction space, which is produced by the

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Noise in a 2-Ray Tube Produced by Shot Fluctuations in the Beams

fluctuations of the current and velocity in the beam; $\overline{E_{1t}}$ is the amplitude of the amplified wave which is produced by the thermal fluctuations at the signal source (related to the origin of the interaction space). The tube is illustrated diagrammatically in Fig.1; it consists of: 1) a 2-beam electron gun, 2) an input resonator, 3) an output resonator, 4) a collector, and 5) the interaction space. Evaluation of E_{1s} and E_{1t} is carried out under the assumption that the charge density in both the beams is identical and that the amplification takes place past the modulating grids. It is further assumed (Ref.2) that the alternating components of the velocity and the current density in the beams can be written in the forms of Eqs.(2), where k is the beam wave number, n is the number of the beam ($n = 1$ or 2), e/m is the ratio of the charge of an electron to its mass, ρ_0 is the average beam charge density, E_k is the initial amplitude of the k^{th} wave, ω is the angular frequency, β is the propagation constant and v_{on} is the mean velocity of the n^{th} beam. By solving the dispersion equation of the system (Ref.2), it is shown that the alternating

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Noise in a 2-Ray Tube Produced by Shot Fluctuations in the Beams

velocity and density components of the beams can also be written as Eqs.(5). On the basis of the above equations the square of the amplitude of the increasing (amplified) wave can be written in the form of the last equation on p 802. Symbols κ , ξ , and δ are defined on p 801; symbols $q(o)$ and $v(o)$ refer to the initial values of the alternating components of the current density and the velocity, respectively. The above results are used to derive expressions for E_{1s} and E_{I^*} . The mean square values of these quantities are given by expressions (16) and (20) respectively, where I_{o1} and I_{o2} are the electron currents in the first and the second beams respectively, S_o is the cross-section of a beam, Δf is the equivalent noise bandwidth of the system, γ is defined by Eq.(11), T_c is the temperature of the cathode, V_{on} is the electron

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Noise in a 2-Ray Tube Produced by Shot Fluctuations in the Beams

accelerating potential and $\alpha = v_{o2}/v_{o1}$ (the velocity ratio). On the basis of Eqs.(16) and (20) the noise figure of the system can be written in the form of Eqs.(21). A graph of the noise figure as a function of α is given in Fig.2; this was calculated for a tube operating at $I_{o1} = 20$ mA, $V_{o1} = 350$ V, $\omega/\omega_o = 10$ and $Z = 100\,\Omega$ (Z is the internal resistance of the thermal noise signal). L. Z. Aitova helped the authors in the calculations. The paper contains 2 figures and 6 references, 4 of which are English and 2 Soviet.

SUBMITTED: October 9, 1956

1. Electron tubes - Analysis 2. Noise - Applications
3. Mathematics - Applications

S/188/60/000/03/02/008
B019/B056

AUTHORS: Kanavets, V. I., Slavinskiy, O. K.

TITLE: The Influence Exerted by the Primary Velocity Spread Upon the Grouping of Electrons in a Klystron[15] (a Frequency-multiplier)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika, astronomiya, 1960, No. 3, pp. 13 - 23

TEXT: An expression is found in kinematic approximation for the harmonics in the electron stream in a klystron (a frequency-multiplier) taking in consideration the primary velocity spread and neglecting the effect of the space charge. On the basis of the estimate of the extent of the velocity spread carried out in the first part, formula (10) is derived in the second part for the n-th harmonic current. From this formula, formula (15) is obtained, which may be used for the calculations. In the third and fourth parts, the results obtained for a large and a small velocity spread are represented in form of diagrams. In the last part, the effect of the change in the interaction of the flux and the

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The Influence Exerted by the Primary Velocity Spread Upon the Grouping of Electrons in a Klystron (a Frequency-multiplier)

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B019/B056

modulating field on the flux cross section is investigated. It is found in this connection that, by decreasing the amplitude of the higher harmonic, the velocity spread exerts considerable influence upon electron grouping. The authors are of the opinion that velocity spread must be taken into account in an investigation of the operation of a multiplier in the millimeter- and also in the centimeter range. The diagrams given offer the possibility of estimating the influence exerted by velocity spread and the flight angle upon the higher harmonics. It is recommended for the millimeter range to use a laminar flux, a cathode with homogeneous emission, and a modulating system with an electron interaction that is constant over the cross section. The authors thank V. M. Lopukhin for valuable advice. There are 6 figures and 12 references: 5 Soviet, 2 French, 3 American, and 2 British.

ASSOCIATION: Kafedra radiotekhniki (Chair of Radio-engineering) VC

SUBMITTED: September 3, 1959

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21611

S/188/61/000/002/006/010
B113/B203

9.4230

AUTHOR: Kanavets, V.I.

TITLE: Capture of oscillations generated by a backward-wave tube in the millimeter range

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya 3, fizika, astronomiya, no. 2, 1961, 34 - 40

TEXT: The author studied peculiarities of the synchronization of a backward-wave oscillator of the type O (O) for the millimeter range with the use of electronic frequency multiplication of this generator in the centimeter range. The measurements were made with a two-stage tube whose first stage was a traveling wave tube of the centimeter range, and the second one was the backward-wave oscillator investigated. The oscillation synchronization of the backward-wave tube output was performed by the sixth harmonic of the electron beam focused under the action of the high-frequency field of the traveling wave tube spiral. The oscillations in the millimeter range passed from the tube output into a waveguide measuring leads where the frequency and the oscillatory power were measured, and the spec-

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Capture of oscillations ...

trum was analyzed by means of a spectrum analyzer. With an input signal of the power P_0 of less than 35 mw, the power of the backward-wave tube output was about 1.8 mw. With increasing external signal, the oscillatory power drops due to an increase in the scattering rate in the beam. If P_0 is larger than 35 mw, the sixth harmonic of the beam is realized by frequency synchronization. The oscillogram of the signal shows a peak whose boundary clearly indicates the amplitude jump. With increasing input power, the generation power drops quickly, and at $P_0 > 49$ mw, the generation vanishes, and the screen of the oscilloscope shows a signal of the sixth harmonic. The amplitude jump at the peak boundaries characterizes the limits of the frequency synchronization range. Within this range, the frequency must be constant and equal to $6f_0$, f_0 being the frequency of the input signal. This was checked with a spectrum analyzer in the millimeter range. The maximum width of the frequency band of synchronized oscillations observed experimentally was 6 Mc/sec; this synchronization band width depends on the ascent of the dispersion curve for the delay system of the

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Capture of oscillations ...

backward-wave tube. In the present case, a sharp ascent produces a small band width. In the two-stage tube, it is possible to enlarge the band width with increasing generation power at increasing current density in the beam, and with increasing magnetic field strength. When interpreting the peculiarities of frequency synchronization, the following results were obtained: In synchronization on the fundamental frequency, the generation power little changes with a change in power of the synchronized signal, whereas in synchronization on the harmonic, the generation power decreases strongly. M.S. Neyman is mentioned. There are 5 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Kafedra radiotekhniki (Department of Radio Engineering)

SUBMITTED: October 10, 1960

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24467
S/109/61/006/006/008/016
D204/D303

9.4230

AUTHOR: Kanavets, V.I.

TITLE: Harmonics in the electron beam at the output of a traveling wave tube

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 6, 1961, 954 - 963

TEXT: The paper describes investigations into the bunching of electrons in a beam moving along the output drift cylinder of a traveling wave tube, at distances longer than the wavelength of the plasma oscillations, and at various drift-space potentials. This work was carried out to supply information, lacking in literature, on the phenomena of bunching in the output drift space of traveling wave tubes when the potential of this space is different from that of the helix. The method used was to measure the third harmonics in the 10 cm waveband with a moving probe of the wide-band non-resonant type. The distance between the end of the helix and

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the front end of the probe was variable from 0 to 26 cm. The disadvantage of the very low level of radiation (less than 1 microwatt) radiated from the probe is balanced by the simplicity of this method, while still giving sufficient sensitivity. The moving unit was a steel cylinder, attached to the probe, inside a glass tube where it could be moved by using an auxiliary solenoid. The potential of the probe was always equal to that of the drift cylinder. The operating conditions of the tube were: beam current 5.5 mA, helix potential 500 V, input wavelength 28.5 cm, third harmonic wavelength 9.5 cm. At input power levels below 2 mW operation is nearly linear and the third-harmonic power output is much less than maximal. Beyond 2 mW input, operation becomes nonlinear, the amplification falls to its first minimum at 6 mW, and the third-harmonic signal at the end of the helix (l = 0) reaches its first maximum at 10 mW input. Results of measurements at various distances are given in graphic form. Each input power and drift potential pairing has its own corresponding position of the third-harmonic power maximum point. The graphical analysis shows that at

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distances up to 17 cm amplification of the third harmonic waves occurs in a retarding field ($U_{drift} < U_{helix} = 500$ volts), and attenuation in an accelerating field. At distances longer than 17 cm the picture is reversed: the retarding field attenuates, while the accelerating field amplifies. The largest amplification of the third harmonic was 5 dB for $P_0 = 0.5$ mW and $l = 16$ cm. The amplification effects are confined to input signal powers below 2 mW. This amplification can be utilized in frequency multipliers. With large input signals ($P_0 \gg 10$ mW) the power of the third harmonic increases with the distance. This is related to the existence of standing waves of plasma oscillations. The periodicity can be seen clearly in Fig. 7. This diagram resembles a drawing of standing waves. The amplitude increases towards the longer distances, reaching a maximum at 800 volts potential and 23 cm distance. Here the power of the harmonic is one order of magnitude greater than at the end of the helix ($l = 0$). It was found from the data that the wavelength of the oscillations producing these standing waves is $\Lambda = 9.5 \cdot 10^{-3} U_{drift}$ cm for 36 mW input. This relationship holds

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D204/D303

Harmonics in the ...

for $l < 15$ cm. Next the wavelength of the electronic plasma oscillation was evaluated, taking into account the finite beam cross section. Within a wide range of U_{drift} values this wavelength, Λ_q, was found to be about twice as much as Λ. For instance, at $U_{drift} = 500$ V $\Lambda = 4.8$ cm, $\Lambda_q = 11$ cm. The discrepancy is due to the fact that the formula for Λ_q is based on the linear theory which gives an error toward longer wavelengths, where the beam current modulation is appreciable. The author concludes: 1) The standing waves are due to plasma oscillations; 2) The harmonic-energy method for the study of bunching is simple and sufficiently sensitive; 3) Maximal third harmonic power is found at distances longer than the wavelength of the slow-wave plasma oscillations. In small-signal operation there are no standing waves, but a single maximum; 4) The maximal value of the harmonic power in the drift space is less than that inside the traveling wave tube, but the difference is not more than 4 dB; 5) By varying the drift-space potential, the region where harmonics exist can be shifted to vari-

Card 4/7

Harmonics in the ...

ous distances from the helix; 6) With large input signals plasma amplification of waves appears, leading to an increase of one order of magnitude in the harmonics; 7) A retarding field in the helix-drift space region can yield an additional harmonic amplification; 8) The oscillograms given enable one to evaluate the stability of multiplier operation relative to potential fluctuations under different operating conditions. There are 7 figures and 15 references: 3 Soviet-bloc and 12 non-Soviet-bloc. The references to the English-language publications read as follows: A.J. Ashkin, Parametric amplification of space-charge waves, J. Appl. Phys., 1958, 29, 12, 1646; S.E. Webber, Large signal analysis of the multicavity klystron, IRE Trans. Electron Devices, 1958, Ed-5, 4, 98; T.G. Mihran, Harmonic current growth in velocity-modulated electron beams, J. Appl. Phys., 1959, 30, 9, 1346; F. Paschke, Generation of second harmonic in velocity-modulated electron beam of finite diameter. RCA Rev., 1958, 19, 4, 617.

Card 5/7

34270
S/188/62/000/001/002/008
B125/B138

9.4230 (1532)

AUTHORS: Kanavets, V. I., Kashirin, A. A.

TITLE: Propagation of waves with finite amplitudes in an electron flux

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, v. 1, 1962, 7-17

TEXT: The propagation of wavelike current perturbations and the velocity of finite amplitudes are considered in a flux moving in a drift space. Initial flux modulation is effected in a travelling wave tube. The electronic computer Strela (Strela) is used for the calculation with the disc model (24 discs per period) and the Runge method. The initial system of equations consists of the equation of motion for the electrons

Card 1/8 4

Propagation of waves with finite ...

$$\frac{\partial^2\Phi_n(y)}{\partial y^2} = -\frac{\pi}{N}\cdot\frac{\omega_p^2}{\omega^2 C^2}\sum_{l=-N}^{N}(\exp[-k|\Phi_{n+l}(y)-\Phi_n(y)|])\,\mathrm{sign}[\Phi_{n+l}(y)-\Phi_n(y)]; \quad (5),$$

$$\mathrm{sign}\,x = \begin{cases} 1, & x>0, \\ 0, & x=0, \\ -1, & x<0, \end{cases}$$

which is derived from the equation $d^2z/dt^2 = -(e/m_e)E_s$ and designed for programming, and the continuity equation.

$$I(\Phi, y) = I_0\left|\frac{\Delta\Phi_0}{\Delta\Phi(\Phi, y)}\right|; \quad \Delta\Phi = \Phi_{n+1}-\Phi_n. \quad (6).$$

ω_p denotes the plasma oscillation frequency of an infinitely wide flow. The initial conditions for point y_1 are $\Phi_n(y_1)$, $\Phi_{n+1}(y_1)/\ y$, $n = 0,1,\ldots$.

Card 2/4

Propagation of waves with finite ...

in media similar to compressible gases. There are 2 figures and 8 references: 3 Soviet and 5 non-Soviet. The four most recent references to English-language publications read as follows: Rowel I. E. Large-signal analysis of the travelling wave amplifiers. IRE Trans, ED -5, No. 1, 1956; Webber S. E. Large signal analysis of multicavity klystron. IRE Trans, ED-5, No. 4, 1958; Mihran T. G. Harmonic current growth in velocity modulated electron beams. Journ. appl. Phys., No. 9, 1959; Paschke F., Generation of second harmonic in velocity-modulated electron beam of finite diameter. RCA Revue, 19, No 4, 1958.

ASSOCIATION: Kafedra radiotekhniki (Department of Radio Engineering)

SUBMITTED: March 13, 1961

Fig. 1: The amplitudes 1 - 3 of the harmonics as function of distance y: QC = 0.5; k = 1.25; y_1 = 2.8; b = 1.3

Fig. 2: The amplitudes 1 - 3 of the harmonics as function of distance y: QC = 1.0; k = 2.5; y_1 = 4.8; b = 1.9

Card 4/4

KANAVETS, V.I.

Amplification of standing waves in an electron stream at the outlet of a traveling-wave tube. Vest. Mosk. un. Ser. 3: Fiz., astron. 20 no.1:34-41 Ja-F '65. (MIRA 18:3)

1. Kafedra radiotekhniki Moskovskogo universiteta.

L 41615-66 EWT(1) IJP(c) AT

ACC NR: AP6014250 SOURCE CODE: UR/0109/66/011/005/0938/0939

AUTHOR: Kanavets, V. I. 31

ORG: none B

TITLE: Nonlinear interaction of harmonic component waves in an electron beam

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 938-939

TOPIC TAGS: electron beam, electron interaction

ABSTRACT: The interaction between the waves of electron-beam harmonic components in the drift space (a single-dimensional electron motion is assumed) is analogous to the interaction between harmonics in nonlinear dispersing lines. The averaging method in the asymptotic theory of nonlinear oscillations is used to prove the above statement. The proof is connected with the R. V. Khokhlov (Rad.i elektronika, 1961, 6, 7, 1116) and L. A. Vaynshteyn (Rad.i elektronika, 1957, 2, 7, 883) works. Orig. art. has: 20 formulas.

SUB CODE: 09 / SUBM DATE: 28May65 / ORIG REF: 003

Card 1/1 UDC: 621.385.6.01

AUTHORS: Barmin, V. V., Kanavets, V.P., Morozov, B. V., Pershin, I. I. 56-34-4-7/60

TITLE: The Angular Correlations of the $\pi^+ - \mu^+ - e^+$ - Decays in a Propane Bubble Chamber (Uglovyye korrelyatsii $\pi^+ - \mu^+ - e^+$ - raspadov v propanovoy puzyr'kovoy kamere)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 4, pp. 830-835 (USSR)

ABSTRACT: This work investigates the angular distribution of the positrons in the $\pi^+ - \mu^+ - e^+$ -decay and determines a certain quantity "a" for propane for the entire energy spectrum of the positrons. This quantity a is contained in the term for the angular distribution of the positrons $dN = (1 + a \cos\theta)/4\pi$, which is valid in the case of non-conservation of the parity in the subsequent terms of the decay of the positive pion and of the positive myon. θ denotes the angle between the primary directions of motion of the positive myon and of the positron. For this work a propane bubble chamber with a volume of 2 liters was inserted into a beam of positive pions of the synchrocyclotron of the United Institute for Nuclear Research. The positive pions were produced by a beam of positive 650-MeV-protons in a

Card 1/3

polyethylene target. The traces of the particles in the chamber were taken by a stereoscopic camera. 2 possibilities for the determination of the angular distributions are shown. A diagram illustrates the angular distributions of the positrons for 2 series of takings with 4353 and 2408 cases. The asymmetry coefficient for the first series amounts to -0,163 ± 0,037. The magnetic field of 1,8 gauss causes a low depolarisation of the positive myons. For the second series of takings a = -0,214 ± ± 0,05. From this for both series the mean value a = -0,19 ± ± 0,03 results. Both distributions agree well with the assumption of the positive myons in the $\pi^+ - \mu^+$ -decay. Remarkable distortions in the shape of the angular distribution of the positrons can occur only as a consequence of overlooking of $\pi^+ - \mu^+ - e^+$ decays in the scanning of the film. The ratio $a_{propane}/a_{carbon}$ determines the degree of the depolarisation of the positive myons in propane. The coefficient of asymmetry for the elementary process, computed from the found mean experimental value of a, has the value -0,256 ± 0,033. At the end the author thanks the Member of the Academy A.I. Ali-

khanov for providing the theme and the discussion of the results, G.P. Yeliseyev and V.A. Lyubimov for valuable remarks, V.P. Dzhelepov for his collaboration at the accelerator, and V.G. Zaytseva, N.S. Konoplev, I.A. Sosunov, V.M. Golubchikov, V.N. Luzin for their participation in the evaluation of the experimental data. There are 4 figures and 9 references, 2 of which are Soviet.

SUBMITTED: November 15, 1957

1. Electrons--Scattering 2. Mesons--Decay 3. Electrons--Decay

21(8) SOV/56-35-2-50/60

AUTHORS: Barmin, V. V., Kanavets, V. P., Morozov, B. V., Pershin, I. I.

TITLE: The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum (Energeticheskaya zavisimost' koeffitsiyenta asimmetrii v $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ -raspadakh dlya nizkoenergeticheskoy chasti spektra pozitronov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 2(8), pp 542-544 (USSR)

ABSTRACT: Recently, the authors investigated the asymmetry coefficient a' for various parts of the energy spectrum of the protons. The energy of the positrons was measured according to the method of multiple scattering. First a formula is given for the distribution of the decay positrons; it takes the non-conservation of parity into account. The available experimental data essentially concern a constant figuring in the above-mentioned equation. The difference between the asymmetry coefficients a'_{II} and a'_{IV} (which were calculated according

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The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum

to the two-component and four-component theory, respectively) in the high-energy part of the spectrum is by far lower than in the low-energy part. The experiments of the investigation of the asymmetry coefficient for the low-energy part of the spectrum are especially advantageous for the verification of the variants of the theory of the $\mu \rightarrow e$ decay. The authors used the tracks of low-energy positrons of 10 000 $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ decays (Ref 1). A table gives the values of a' (for the low-energy-part of the positron spectrum) for the energy intervals $0 - 0{,}2\varepsilon$; $0 - 0{,}3\varepsilon$; $0 - 0{,}4\varepsilon$, where $\varepsilon = E/E_{max}$ denotes the energy of the positrons in units of the maximum energy of their spectrum. The angular distribution of the positrons taken into account in the above-mentioned table may be described adequately by the law $1 + a \cos \varphi$. The measured values of a' in the energy region < 20 MeV are an argument in favor of the positive sign of a'. The authors thank A. I. Alikhanov, Academician, who suggested this theme and discussed the results, and also A. O. Vaysenberg for discussing some of the problems.

The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum

The authors also thank V. P. Dzhelepov who arranged the use of the π^+-beam of the synchrocyclotron of the Ob"yedinennyy institute yadernykh issledovaniy (United Institute of Nuclear Research) and A. P. Birzgal for carrying out the calculations. There are 1 figure, 1 table, and 10 references, 4 of which are Soviet.

SUBMITTED: May 21, 1958

Card 3/3

SOV/120-59-4-7/50

AUTHORS: Pershin, I. I., Barmin, V. V., Kanavets, V. P., Morozov, B.V.

TITLE: Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 44-49 (USSR)

ABSTRACT: A detailed description is given of the application of the second difference method to the measurement of masses and energies of electrons from multiple scattering in the propane bubble chamber described in Ref 1 by the first of the present authors. The scattering constant for propane calculated from the Williams and Molier theories is compared with the experimental values obtained from measurements on μ-mesons and positrons. Assuming that the density of propane is 0.42 g/cm^3, the calculated scattering constant for $\beta = 0.66$ was found to be $K_1 = 4.35$ Mev.deg/$\sqrt{100\ \mu}$ (Williams)

$K_1 = 4.47$ Mev.deg/$\sqrt{100\ \mu}$ (Molier).

For $\beta = 1.00$ the values were found to be:

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Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

$K_1 = 4.19$ Mev.deg/$\sqrt{100\ \mu}$ (Williams)

and $K_1 = 4.31$ Mev.deg/$\sqrt{100\ \mu}$ (Molier).

The experimental value for μ-mesons was found to be

$K\mu = 4.3 \pm 0.3$ Mev.deg/$\sqrt{100\ \mu}$ and for positrons

$K_e = 3.7 \pm 0.1$ Mev.deg/$\sqrt{100\ \mu}$.

The errors are standard statistical deviations. The optimum cell size is obtained in the usual way and the $\pi^{\pm}$ mass was found to be $290 \pm 24\ m_e$, using the above value of K_μ .

The second difference method has been used for determining the positron energies in $(\pi\ \mu e)^+$ decays obtained with the propane chamber. Measurements carried out over a long period of time have shown that the method may be used to measure

Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

positron energies in the range 5-55 Mev. There are 4 figures and 17 references, of which 5 are Soviet (2 are translations from English), 1 is Swedish, 1 is German and the rest are English.

SUBMITTED: July 18, 1958.

84356

S/056/60/039/004/014/048
B004/B070

24.6900

AUTHORS: Barmin, V. V., Kanavets, V. P., Morozov, B. V.

TITLE: Polarization of μ^+-Mesons of Cosmic Radiation

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 986-990

TEXT: The authors determined the degree of polarization of μ^+-mesons at sea level for three energy intervals. The apparatus used (copper target, copper-lead filter, scintillation counters, Geiger counters) is shown schematically in Fig. 1. The target was under a solenoid by means of which a horizontal magnetic field H = 30 gauss could be produced. Fig. 2 shows the block diagram of the electronics. In the first two series of experiments in which the average momenta of the muons were 0.45 and 0.9 Bev/c, the ratio R of the number of positron decays with and without magnetic field was measured. In a third series, the degrees of polarization of cosmic muons with momenta 0.45 and 1.7 Bev/c were intercompared. The authors obtained the following results:

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84396

Polarization of μ^+-Mesons of Cosmic Radiation

S/056/60/039/004/014/048
B004/B070

momentum [Bev/c]	0.45	0.9	1.7
number of recorded decays	4174	4022	5882
degree of polarization	0.23±0.10	0.37±0.11	0.31±0.10

The authors mention a paper by B. A. Dolgoshein, B. I. Luchkov, and V. I. Ushakov (Ref. 7). They thank Academician A. I. Alikhanov for his interest in the work, G. P. Yeliseyev for help and discussions, and B. V. Geshkenbeyn for discussions on problems concerning calculations. There are 2 figures and 11 references: 4 Soviet, 3 US, 1 British, 1 Dutch, and 2 Italian.

SUBMITTED: May 23, 1960

Card 2/2

S/120/62/000/006/027/029
E192/E382

AUTHORS: Kanavets, V.P. and Morozov, B.V.

TITLE: Output stage of the photomultiplier

PERIODICAL: Pribory i tekhnika eksperimenta, no. 6, 1962, 129

TEXT: The circuit described (see the figure) is designed for amplification of ns pulses derived from the photomultipliers, type ФЭУ-33 (FEU-33) and ФЭУ-36 (FEU-36). The circuit is an amplifier based on a secondary-emission tube connected as a grounded-grid system. This is convenient for amplification of negative pulses. The gain of a stage (as shown in the figure) is 3 for the anode circuit and 2.5 for the dynode. The gain is linear for output amplitudes up to 10 V at the anode and 7 V at the dynode. For stronger input pulses the amplifier becomes nonlinear and the output pulses are limited to 18 V at the anode and 8 V at the dynode. The input impedance of the stage is 75 Ω + 15 pF. The input capacitance can be reduced to 9 pF by disconnecting the heater for 0.1 - 0.2 sec; in this case, the bandwidth of the amplifier is 300 Mc/s.

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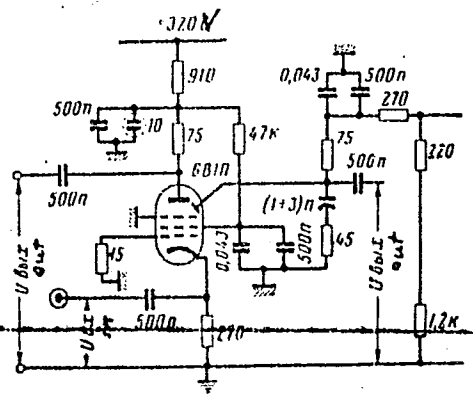
S/120/62/000/006/027/029
E192/E382

Output stage ....

SUBMITTED: February 14, 1962

Figure:



Card 2/2

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.

Comparison of elastic π^+p- and pp-scattering based on a model with three Regge poles. Zhur. eksp. i teor. fiz. 45 no.3:679-683 S '63. (MIRA 16:10)

1. Institut teoreticheskoy i eksperimental'noy fiziki.
(Protons--Scattering) (Nuclear models)

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.; SHAFRANOV, M.D.

Polarization in pp-scattering at an energy of 8.5 Bev. Zhur. eksp. i teor. fiz. 45 no.4:1272-1275 O '63. (MIRA 16:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki i Ob"yedinennyy institut yadernykh issledovaniy.

ACCESSION NR: AR4020693 S/0275/64/000/001/A040/A040

SOURCE: RZh. Elektronika i yeye primeneniye, Abs. 1A194

AUTHORS: Kanavets, V. P.; Morozov, B. V.

TITLE: Photomultiplier output stage

CITED SOURCE: Tr. 5-y Nauchno-tekhn. i konferentsii po yadern. radioelektronike. T. 3. M., Gosatomizdat, 1963, 136-137

TOPIC TAGS: photomultiplier, photomultiplier output stage, pulsed photomultiplier output, secondary emission tube, coincidence circuit, high resolution coincidence circuit

TRANSLATION: A circuit is described for the amplification of the output pulses of FEU-36 time-duration photomultipliers. The circuit is built around a secondary-emission tube. The circuit parameters are: input resistance 75 ohms, anode and emitter circuit load resis-

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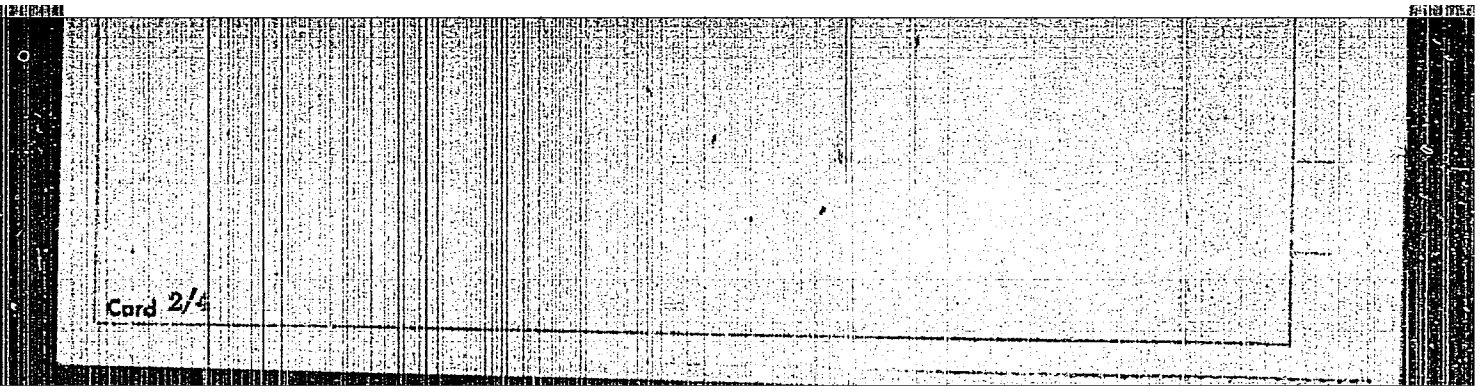
ACCESSION NR: AR4020693

tance 75 ohms, amplification factor 3 in the anode circuit and 2.5 in the emitter circuit, signal linearity to 10 V in anode circuit and to 7 V in the emitter circuit, input capacitance of stage 15 pF and with the heater disconnected 9 pF (corresponding to a bandwidth of 300 Mc). The circuit can be used to improve the time characteristics of high-resolution coincidence circuits. V. P.

DATE ACQ: 03Mar64 SUB CODE: PH ENCL: 00

Card 2/2



APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620320016-1"

L 3919-66 EWT(m)/T/EWA(m)-2

ACCESSION NR: AT5022121 UR/3138/65/000/325/0001/0016

AUTHOR: Kanaveta, V. P. 44,55

TITLE: On the real part of spinless amplitude with T = 0 and spin-dependent amplitudes of nucleon-nucleon forward scattering at high energies

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy i eksperimental'noy fiziki. Doklady, no. 325, 1965. O deystvitel'noy chasti besspinovoy amplitudy s T = 0 i spinozavisyashchikh amplitudakh nukleonnukleonnogo rasseyaniya vpered pri vysokikh energiyakh, 1-16

TOPIC TAGS: nuclear spin, proton scattering, neutron scattering

ABSTRACT: Data on the interference of the real part of the spinless amplitude of p-p scattering Re $a^{(1)}$ and of the Coulomb amplitude at high energies, as well as data on neutron-proton charge exchange, are used to determine the contribution of the real part and spin-dependent amplitudes to the isotopic amplitude $A^{(0)}$ of a state with isotopic spin zero for forward scattering. It is shown that, within the scope of isotopic invariance, at energies of up to 2-3 GeV the contribution to $A^{(0)}$ of a state with T = 0 is from the real part of spinless amplitude Re $A^{(0)}$ or

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L 3919-66
ACCESSION NR: AT5022121

from spin-dependent amplitudes. An experiment on elastic neutron-proton scattering at small angles is used to check the selection of the solution and the determination of the contribution of spin-dependent amplitudes. Under the assumption of a negligible contribution of spin-dependent amplitudes, it is found that

$$\frac{d\sigma^{np}}{dt}(0)=\frac{\kappa^2\sigma_t^{np}}{(4\pi)^2}+\left[\mathrm{Re}\,a^{(1)}\right]^2+\frac{d\sigma^{pp}}{dt}(0)-\frac{\kappa^2}{(4\pi)^2}\left(\sigma_t^{pp}-\sigma_t^{np}\right)\pm 2\,\mathrm{Re}\,a^{(1)}\left[\frac{d\sigma^{pp}}{dt}(0)-\frac{\kappa^2}{(4\pi)^2}\left(\sigma_t^{pp}-\sigma_t^{np}\right)^2\right]^{1/2},$$

which, when applied to experimental data for 2.85 GeV, shows that the probable solution corresponds to a 26% excess over the optical limit. The second solution does not lead to excess over the optical limit. The author thanks I. Yu. Kobzarev, I. I. Levintov, B. V. Morozov, L. B. Okun', I. Ya. Pomeranchuk, and I. S. Shapiro for discussion and remarks and B. A. Kulakov, S. B. Kurnushev, E. N. Tsyganov, and I. V. Chuvilo for discussion of the experiment. Orig. art. has: 2 graphs and 26 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NO REF SOV: 017 OTHER: 017

Card 2/2

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.

Polarization in elastic proton-proton scattering at high energies.
IAd. fiz. 1 no.1:96-102 Ja '65. (MIRA 18:7)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.

KANAVETS, V.P.

Real part of the zero-spin amplitude CT = 0 and the spin dependent nucleon-nucleon forward scattering amplitudes at high energies. IAd. fiz. 2 no.5:931-937 N '65.

(MIRA 18:12)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.

USSR/Optics - Physiological Optics, K-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35929

Author: Kanaveyev, O. L.

Institution: None

Title: Effect of a Glittering Source of Light on the Perception of Depth

Original Periodical: Tr. In-ta biol. fiz., AN SSSR, 1955, 1, 192-199

Abstract: The conditions and observation objects characteristic of a construction platform, were simulated in laboratory investigations. The results of the experiments show that as the brightness of the background increases the perception of the relative distance of the objects or the perception of depth increases gradually and after reaching a definite maximum value, it stops being dependent on the brightness of the background. As the angle of action of the glittering source of light increases, the perception of depth increases, and at very large angles of action it stops being dependent on it.

Card 1/1

KANAVETS, O.L., inzhener

Conference on the problem of ultraviolet defficiency in the North. Svetotekhnika 1 no.2:30-31 Ap '55. (MLRA 8:9)
(Ultraviolet rays--Physiological effect)

KANAVETS, O.L.

Conference on problems of measurements in the ultraviolet region of the spectrum. Svetotekhnika 1 no.4:27 Ag '55. (MIRA 8:9)
(Spectrum, Ultraviolet)

KANAVETS, O. L.

The Effect of Brilliant Sources of Light on the Perception of Depth

Trudy Institute Biologicheskoy Fiziki , No 1, 1956
S916, 5 Mar 1956, p49

KANAVETZ- YAKOVLEVA, O.L.

USSR/Human and Animal Physiology - Nervous System. R-12

Abs Jour : Referat Zhur - Biologiya, No 16, 1957, 71185

Author : Kanavetz- Yakovleva, O.L.
Title : The Influence of the Brightness of Background and the Angle of Action of the Source of Light on the Complex Motor Human Reactions.

Orig Pub : Biofizika, 1956, 1, No 3, 254-261

Abstract : The experimental set-up reproduced conditions of working with a crane or an excavator. 7 subjects received the assignment to move a rod in space and place it at a distance (4.75 m) equal to that of an immovable rod, using for this manipulation hand drums and a foot pedal. The strength of a bright light source (BLS) was so regulated that in any position the illumination on the pupil was 10"lk". In working without BLS the fall of the background brightness below 0.1 "msb" led to the lowering of precision and prolongation of pauses in the movements.

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USSR/Human and Animal Physiology - Nervous System. R-12

Abs Jour : Referat Zhur - Biologiya, No 16, 1957, 71185

The presence of BLS, placed at a small angle to the subject, lowered the work productivity the more, the smaller the background brightness. While background brightness of 1-0.1"msb" the angle could be decreased (of BLS) to 7 deg., without decreasing productivity. With a background brightness of 0.01 "msb" the decrease of BLS to 20 deg. lowered the productivity. The typological specificities of the subjects is reflected under normal conditions only in the speed of work. By lowering the background brightness and decreasing the angle of BLS the typological differences are very distinct. In subjects with retarded reactions the number of movements and pauses increased the depth perception became disturbed.

Card 2/2 - 127 -

GLAGOLEVA, Tat'yana Aleksandrovna; KANAVETS-YAKOVLEVA, Ol'ga Lukinichna; POLLAK, Sergey Vladimirovich; SOKOLOV, Mikhail Vasil'yevich, prof.; SHAYKEVICH, Aleksandr Semenovich; ASHKENAZI, G.I., red.; LARIONOV, G.Ye., tekhn.red.

[Lighting for construction and assembly work at hydroelectric power stations] Osveshchenie stroitel'nykh i montazhnykh rabot pri sooruzhenii gidroelektrostantsii. Pod red. M.V.Sokolova. Moskva, Gos.energ.izd-vo, 1957. 142 p. (MIRA 11:1)
(Building) (Lighting)

KANAVETS-YAKOVLEVA, O.L., inzhener.

Section for the study of ultraviolet radiation within the Scientific Council of the Biological Physics Institute of the Academy of Sciences of the U.S.S.R. Svetotekhnika 2 no.2:28 Mr '56. (MLRA 9:7)
(Ultraviolet rays)

KANAVETS, O.L.

Depth perception as affected by the conditions of illumination and the character of the response reaction. Probl.fiziol.opt. 12:309-313 '58 (MIRA 11:6)

1. Institut biofiziki AN SSSR.
(VISION)

DUBININ, N.P.; KANAVETS, O.L.

Space flight factors and primary nondisjunction of chromosomes.
Probl.kosm.biol. 1:252-257 '62. (MIRA 15:12)
(SPACE FLIGHT—PHYSIOLOGICAL EFFECT) (CHROMOSOMES)

SHIPILOV, A.P.; KANAVIN, N.A.

Lining of the canal M-2 on the Farkhad State Farm. Mat. po proizv. sil. Uzb. no.15:232-242 '60. (MIRA 14:8)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut irrigatsii, Tashkent (for Shipilov). 2. Uzgidroenergostroy (for Kanavin).
(Golodnaya Steppe—Irrigation canals and flumes)

KANAVIN, O.N.; KURTSER, Ye.I. (Moskva)

Increase the durability and reliability of wheel excavators.
Stroi. truboprov. 8 no.5:8-10 My '63. (MIRA 16:5)

1. Stroitel'no-montazhnoye upravleniye No.1 tresta Soyuzprovodmekhanizatsiya, Ufa (for Kanavin).

(Excavating equipment)

KANAVIN, O.N., inzh.

Prepare well for construction of the next part of the Bukhara-Ural Mountain region gas pipeline. Stroi. truboprov. 7 no.11:4 N '62. (MIRA 15:12)

1. Stroitel'no-montazhnoye upravleniye no.1 tresta Soyuzprovod-mekhanizatsiya, Ufa.
(Gas, Natural—Pipelines)

KANAVIN, V. (Vladivostok)

Valuable innovations. Pozh.delo 9 no.7:25 Jl '63. (MIRA 16:10)

KANAVINA, N. G. IA 242T102

USSR/Physics - Nickel Structure Mar 52

"Electron-Microscopic Study of Structural Changes Occurring in Nickel During Electric Corrosion," N. G. Kanavina and G. V. Spivak, Chair of Electron Optics

"Vest Moskov U, Ser Fiz, Mat, i Yest Nauk" No 2, pp 15-19

Study changes in nickel occurring after electric spark treatment, characterized by ring-shaped structural distribution around the spark center. Surface of metal 0.2 mm from ring edge underwent deformation. X-ray study confirmed presence of fine structure. Received 2 Nov 51.

242T102

KANAVINA, N. G.: SPIVAK, G. V.

Nickel - Metallography

Electron microscope analysis of the structural changes of nickel in electro-erosion. Vest. Mosk. un., 7, No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October, 1952 Unclassified.

KANAVINA, N. G.

USSR/Physics - Electron Optics 21 Sep 53

"Electron-Optical Method of Reproduction of Object with Magnetic Heterogeneities," G.V. Spivak, N.G. Kanavina, I.N. Chernyshev and I.S. Sbitkova, Moscow State U

DAN SSSR, Vol 92, No 3, pp 541-543

Describe a method for observing objects which contain unhomogeneous magnetic fields that are located on the cathode of an emissive electron microscope. The observed unevenness of magnetization of the cathodic surface contributes to the formation and to the contrast of the electron image.

268T93

Suggested method may also be applied for study of static and dynamic processes of magnetization. Presented by Acad P.A. Rebinder 21 Jul 53.

268T93

KHLOVINA, N. S.

Dissertation: "Extending the Range of Observations Conducted With Immersion Objective Lens (Electron-Optical Method of Representation of Magnetic Heterogeneities)." Cand Phys-Math Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, 9 Jun 54.

SO: SUM 284, 26 Nov 1954

SPIVAK, G.V., KANAVINA, N.G., SBITNIKOVA, I.S., DOMBROVSKAYA, T.N.

Electron optical method of mapping the domains of ferromagnetic materials. Dokl. AN SSSR 105 no.4:706-708 D '55. (MLRA 9:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Predstavleno akademikom M.A. Leontovichem.
(Ferromagnetism)

KANAVINA, N. G., SPIVAK, G.V., SHITNIKOVA, I. S., FRILEYAYEVA, I. N., DOMBOVSKAYA, T. N., AZOVTSEV, V. K. (Moscow)

"On the Direct Visualization of the Domains of a Ferromagnetic by Means of an Electron Microscope with Secondary Emission and an Electron Mirror," a paper submitted at the International Conference on Physics of Magnetic Phenomena, Sverdlovsk, 23-31 May 56.

KANAVINA, N. G.

AUTHORS: Spivak, G. V., Kanavina, N. G., Sbitnikova, I. S. 48-8-21/25
Prilezhayeva, I. N., Dombrovskaya, T. N., Azovtsev, V. K.,

TITLE: The Direct Observation of Domas of Ferromagnetica on the Occasion of the Application of the Double-Emission Electron Microscope and the Electron Mirror (O neposredstvennom nablyudenii domenov ferromagnetika pri pomoshchi vtorichno-emissionnogo elektronnogo mikroskopa i elektronnogo zerkala)

PERIODICAL: Izvestiya AN SSSR, Ser.Fiz., 1957, Vol. 21, Nr 8, pp. 1177-1182 (USSR)

ABSTRACT: Already in 1947 L. Germer proved that the electron beam gliding along the cobalt monocrystal enters into cooperation with doma fields, but the was not able to obtain a doma image because the electron beam used by him for this purpose was not suitable.Also the results obtained by the research work carried out by Marston and his collaborators are here described as interesting, but also in this case doma images were not obtained. In contrast to the works mentioned, a method is suggested here, according to which it is possible to obtain doma images of ferromagnetica by the application of the electron beam, and also the process of magnetization can be observed on the surface of the sample. This paper is based upon the idea that it is possible to produce an electron optical contrast, and that, hereby, it is possible to study magn-

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The Direct Observation of Domas of Ferromagnetica on the Occasion of the Application of the Double-Emission Electron Microscope and the Electron Mirror. 48-8-21/25

ASSOCIATION: Dept. of Physics of Moscow State University imeni M.V.Lomonosov (Fizicheskiy fakultet Moskovskogo gos. universiteta imeni M.V. Lomonosova)

AVAILABLE: Library of Congress

Card 3/3

ACCESSION NR: AP4023409 S/0048/64/028/003/0572/0579

AUTHOR: Telesnin, R.V.; Il'icheva, Ye.N.; Kanavina, N.G.; Kolotov, O.S.; Nikitina, T.N.; Shishkov, A.G.

TITLE: Investigation of some dynamic properties and the domain structure of thin iron-nickel films /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 572-579

TOPIC TAGS: thin ferromagnetic films, thin permalloy films, thin film domain structure, thin film coercive force, film magnetization switching, thin film hysteresis

ABSTRACT: The dispersion of the direction of the anisotropy axis, magnetization reversal (switching) time, coercive force, and anisotropy field were measured for a number of thin films of permalloy 79HMA. Changes in the domain structure of the films during quasistatic magnetization reversal were observed by means of the magnetooptical Kerr effect. The films were vacuum deposited on polished glass at various temperatures and with various values of applied magnetic field. The dispersion of the anisotropy was measured by a slight modification of the method of D.O.Smith

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ACCESSION NR: AP4023409

(J.Appl.Phys.33,1399,1962). The field $H_{0.7}$ at which the flux linking the transverse coil reached 0.7 of its maximum value was taken as a measure of the dispersion. Both $H_{0.7}$ and the switching ratio (the product of the magnetization reversal time by the excess of the magnetizing field over the coercive force) behaved similarly as functions of the temperature and magnetic field at deposition. From this it is concluded that the dynamic properties of the films are determined by the dispersion of anisotropy. Curves showing the reciprocal of the magnetization reversal time as a function of the magnetizing field in the presence of a constant transverse field were straight lines hvaing a single sharp bend. The bend is interpreted as indicating a transition from magnetization by uniform rotation to magnetization by non-uniform rotation. The product of the magnetizing field and the transverse field at the transition was a linear function of $H_{0.7}$ for films of the same thickness. From an analysis of the rather complex hysteresis phenomena observed in films with a tapering edge (thickness falling to zero over a distance of 1 or 2 mm), and from observations of the accompanying changes of domain structure, it was possible to determine the field at which reverse magnetization nuclei began spontaneously to form. This field was 2.0 Oe for nearly all the films, regardless of thickness. Critical curves for magnetization reversal in slowly changing fields making various angles

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ACCESSION NR: AP4023409

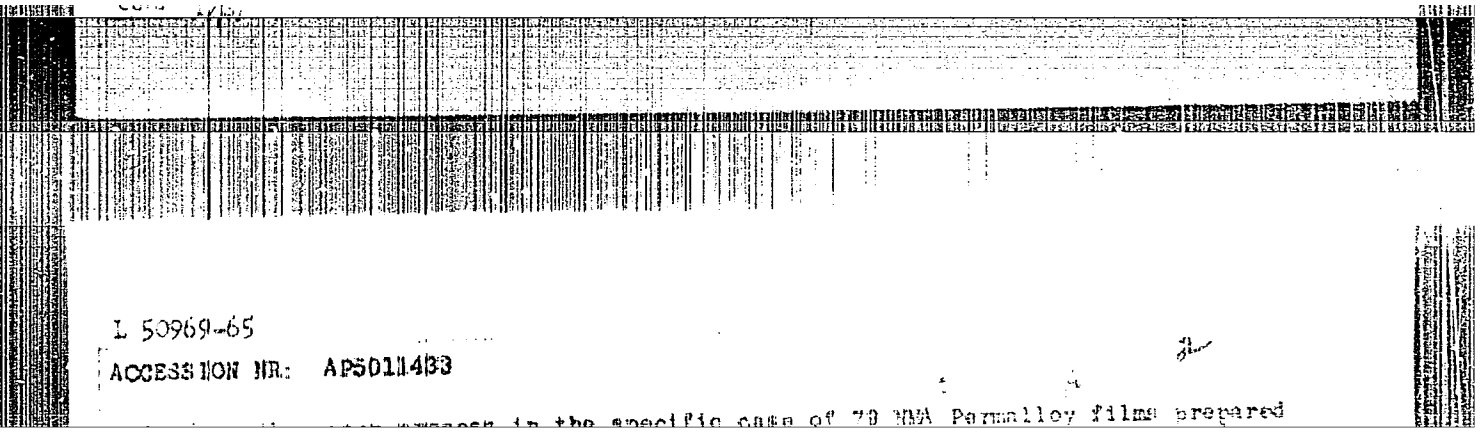
with the easy magnetization axis did not conform to the theory of uniform rotation of magnetization. Both domain wall displacement and incoherent rotation appeared to be involved. The critical angle was a function of the ratio of the coercive force to the anisotropy field, and was independent of film thickness. The values obtained for films from 1200 to 1700 Å thick agree with those obtained by W.Metzdorf (Z.Ang. Phys.14,7,421,1962) for films of half this thickness. In films having a tapering edge, magnetization reversal in fields making a small angle with the easy magnetization axis occurred suddenly; a reverse magnetization nucleus would expand to fill the whole film as soon as it was formed. Orig.art.has: 1 formula, 12 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 006 OTHER: 005

3/3
Card



L 50969-65

ACCESSION NR: AP5011433

[illegible] in the specific case of 70 MVA Permalloy films prepared

Card 2/3

IL'ICHEVA, Ye.N.; KANAVINA, N.G.; SHISHKOV, A.G.

Critical curves for thin Permalloy films. Izv. AN SSSR. Ser.fiz. 30 no.1:99-102 Ja '66. (MIRA 19:1)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.

L 15121-66 EWP(a)/EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD

ACC NR: AP6004480 UR/0048/66/030/001/0099/0102

60
59
13

AUTHOR: Il'icheva, Ye.N.; Kanavina, N.G.; Shishkov, A.G.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Critical curves of thin Permalloy films /Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held at Irkutsk 10 July to 15 July, 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 1, 1966, 99-102

TOPIC TAGS: ferromagnetic film, magnetic thin film, permalloy, Kerr effect, Faraday effect, magnetic coercive force, magnetic domain boundary, magnetization

ABSTRACT: By a critical curve is understood a curve giving the strength of the magnetizing field at which some feature of the switching process occurs as a function of the angle between the magnetizing field and the easy axis, plotted in polar coordinates or, what is the same thing, with the longitudinal (parallel to the easy axis) and transverse components of the magnetizing field as rectangular Cartesian coordinates. Critical curves for the nucleation field, for the field at which domain wall motion begins, and for the coercive force of 79NMA Permalloy films of different thicknesses were obtained with the aid of the Kerr and Faraday effects, using techniques that have been described elsewhere by the authors (Fiz. metallov i metallovedeniye, 20, No. 1

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L 15421-66

ACC NR: AP6044480

(1966)) and by the authors and R.V.Telesnin, O.S.Kolotov, and T.N.Nikitina (Izv. AN SSSR. Ser. fiz., 28, 872 (1964)). The nucleation fields were measured with films that had been magnetized to saturation along the easy axis; the fields for onset of domain wall motion were measured with demagnetized films. These curves are discussed at some length. For thick films the critical curves for onset of domain wall motion agreed with the formula of S.Middelhoek (J.Appl.Phys., 34, 1054 (1964)) for Neel walls; for thin films with a large angle between the magnetizing field and the easy axis the corresponding curves agreed approximately with Middelhoek's formula for Bloch walls. From a comparison of all the curves it is concluded that the coercive force depends on the ratio of the nucleation field to the field for onset of domain wall motion, and that the behavior of the critical curves for nucleation and for onset of domain wall motion depends on the type of domain walls in a film of given thickness. Orig. art. has: 2 formulas and 2 figures.

SUB CODE: 20 SUBM DATE: 00 ORIG REF: 005 OTH REF: 003

Card 2/2

L 32777-66 EWP(e)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6012797 SOURCE CODE: GE/0030/66/014/002/0363/0370

AUTHOR: Telesnin, R. V.; Ilicheva, E. N.; Kanavina, N. G.; Shishkov, A. G.

ORG: Faculty of Physics, University of Moscow

TITLE: Domain wall creep rate in thin permalloy films [Contribution to the International Colloquium on Magnetic Thin Films held from 25 to 28 April 1966 in Jena]

SOURCE: Physica status solidi, v. 14, no. 2, 1966, 363-370

TOPIC TAGS: permalloy, metal film, creep, magnetic field

ABSTRACT: An analysis of the experimental dependence of the domain wall creep rate (V) on the intensity of magnetic fields in the "easy" (H_L) and "hard" (H_T) directions gives a characteristic exponential dependence of V on H_L with H_T constant. The parameters of the exponential $V(H_L)$ for films of different thickness are presented, and it is shown that one of the parameters should be the critical start field of the wall, $H_{w.st.}$, rather than the coercivity, H_c. It is shown that creep parameters vary when the sinusoidal bipolar alternating field along the "hard" axis is replaced by a unipolar magnetic field. Orig. art.

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L 32777-66

ACC NR: AP6012797

has: 6 figures and 4 formulas. [Author's abstract] [KS]

SUB CODE: 20/ SUBM DATE: 17Jan66/ ORIG REF: 003/ SOV REF: 001/
OTH REF: 007

Card 2/2 JS

S/137/62/000/004/013/201
A006/A101

AUTHORS: Bardin, I. P., Gess-de-Kal'ye, B. A., Kanavtsev, P. I., Vavilov, N. S., Melenzhyev, P. N., Diyev, V. Ye.

TITLE: Reduction of ore-fuel granules in a suspeded gushing layer for the purpose of obtaining sponge iron

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 17, abstract 4V121 (V sb. "Fiz. khim osnovy proiz-va stali", Moscow, AN SSSR, 1961, 168-176)

TEXT: The authors describe a process of reducing ore-fuel granules (of 2 - 3 mm size) obtained by the chemical catalytical method developed by the Institute of Fuel Minerals and the Institute of Metallurgy imeni A. A. Baykov. The granules were prepared from KMA ore concentrates with coal coke and peaty semicoke. Reduction was performed in a suspended gushing layer in a laboratory metallic single-stage reactor with the aid of preheating reducing gas, which was then burnt for the external heating of the reactor. Reduction proceeded particularly intensively at $> 900^{\circ}C$; within 5 minutes a reduction degree of 90% was attained. The granules did not stick together or onto the reactor walls. Data

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S/137/62/000/004/013/201
A006/A101

Reduction of ore-fuel granules ...

are obtained for the design of a semi-industrial unit. For the industrial assimilation of the method the granules should be manufactured from very rich concentrates, containing 65 - 70% Fe. Laboratory melting of the sponge-Fe obtained shows that it may be used as a scrap substitute in steel production. There are 7 references.

A. Pokhvisnev

[Abstracter's note: Complete translation]

Card 2/2